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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/828,843	04/21/2004	James A. Perkins	56527.C1/ C-3670.0	5307

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KNOXVILLE, TN 37901

EXAMINER

POPOVICS, ROBERT J

ART UNIT	PAPER NUMBER
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1724

MAIL DATE	DELIVERY MODE
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06/20/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/828,843

Applicant(s)

PERKINS ET AL.

Examiner

Robert J. Popovics

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2006 & 12 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-12,14 and 16-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-12,14 and 16-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

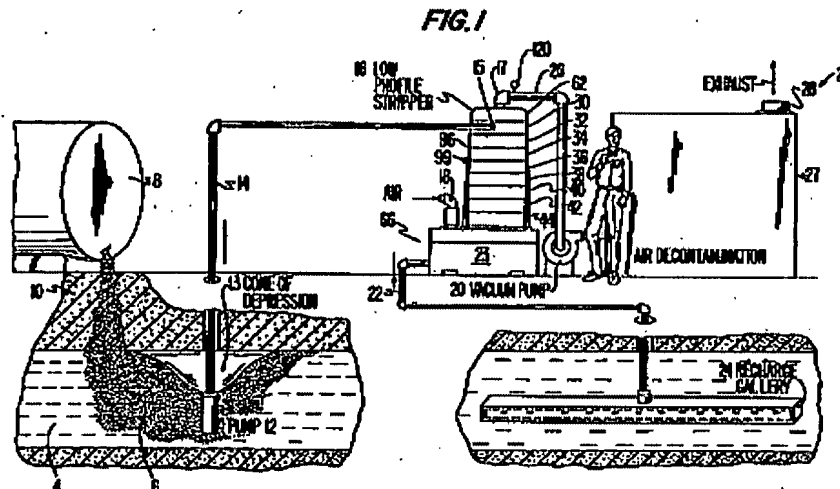
The finality of the last Office Action is withdrawn. This Action is made **Final**.

Status of After-Final Amendment

The After-Final Amendment submitted on **April 12, 2007** has not been entered.

Claim Rejections - 35 USC § 102

Claims 1,3-6,9-12,14 and 16-20 are rejected under 35 U.S.C. 102(b) as being anticipated by **Rentschler (US 5,352,276)**.



As shown in Fig. 1, Rentschler discloses a water remediation system.

From column 11 of Rentschler, beginning at line 5:

The system is particularly useful for decontamination of water contaminated with volatile organic compounds (VOC) which may be introduced to Found water through leakage of a storage tank or the like, as illustrated in FIG. 1. A typical example is a gas station from which VOCs have leaked into the groundwater. Chemical species that make up the contamination include gasoline components, e.g., MTBE (methyl tert-butyl ether) and the BTEX compounds (benzene, toluene, ethyl benzene and xylenes) as well as other water insoluble, high vapor pressure compounds.

The stripper of Rentschler is in the process flowline, and hence, **"inline."**

Claim Rejections - 35 USC § 103

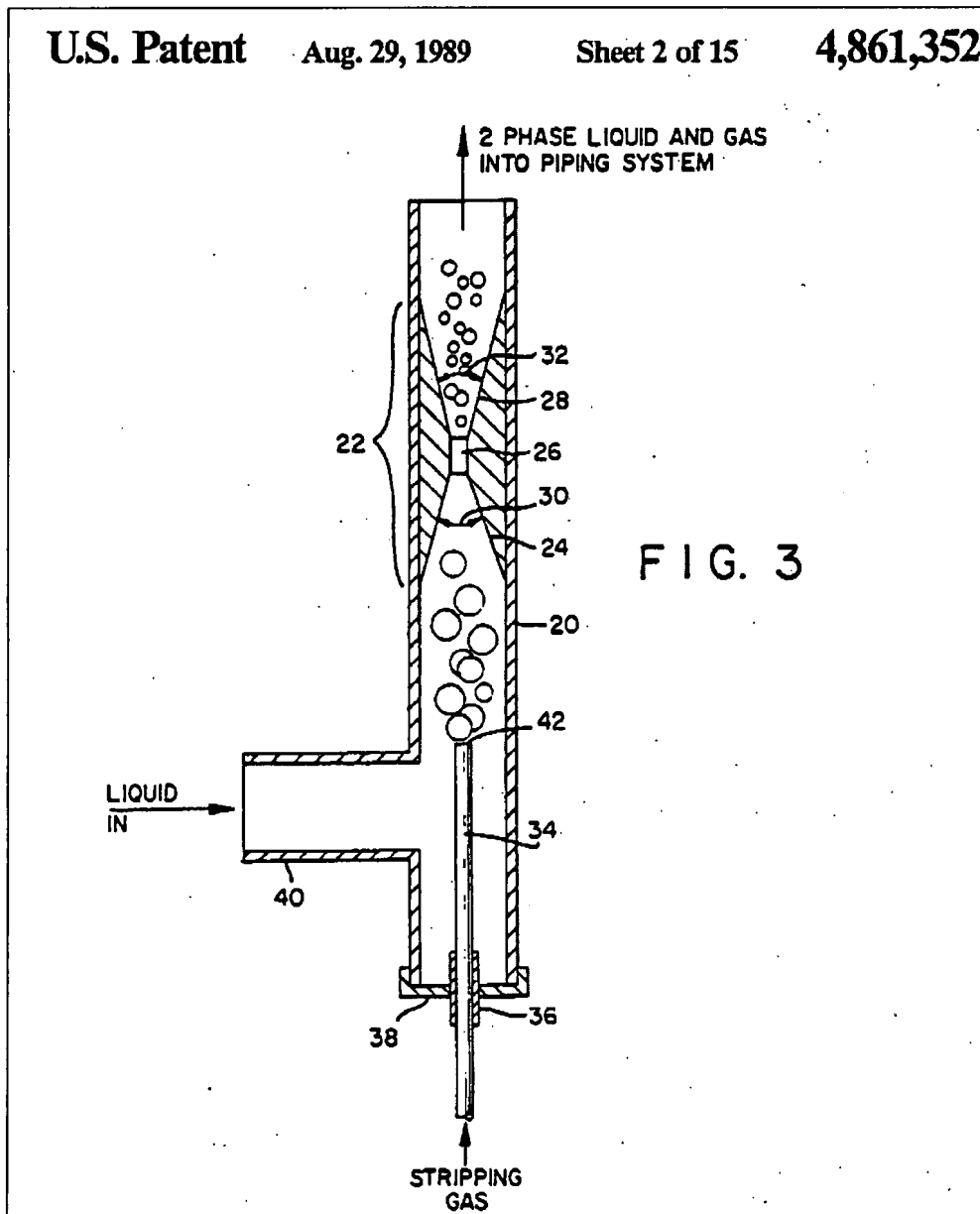
Official Notice

Official Notice of the following is taken:

- 1) MTBE is a well known contaminant found in groundwater due to gasoline spills, or leakage from gasoline storage tanks.
- 2) Removal of MTBE and other hydrocarbon/volatile water contaminants using various stripping techniques, is well known to those skilled in the art.
- 3) The use of venturis, venturi type devices, entrainment devices, jet pumps, eductors, ejectors, fans, pumps, blowers, motive fluid devices, etc., to generate suction, or create a vacuum, or reduced pressure region, is well known to those skilled in the art.
- 4) The **AiRTX™ Air Amplifier** is a known, commercially available, prior art entrainment device, that is marketed to create a strong vacuum or to manipulate the velocity of a fluid using compressed gas.
- 5) Application of vacuum, reduced pressure or suction to a liquid having hydrocarbons or volatiles contained/dissolved therein results in those compounds coming out of the water – **Henry's Law**. (Henry's Law: ***At a constant temperature, the amount of a given gas dissolved in a given type and volume of liquid is directly proportional to the partial pressure of that gas in equilibrium with that liquid.***)
- 6) The use of multiple stages, or a series of treatment devices in series is well known in the art to multiply the effect of a single stage. Entire college courses (e.g., Unit Operations) are largely devoted to the study of multiple stage separations.
- 7) Those skilled in the art are well aware of Official Notice items 1-6.

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Claims 1,3-12,14 and 16-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of **Cheng (US 4,861,352)** and **AAPA (Applicant's Admitted Prior Art)**. **Cheng** discloses an inline stripper:



Cheng does not appear to expressly disclose *“establishing a well”* as recited in independent claim 1, or *“at least one well extending from the ground surface to a downhole location,”* as recited in independent claim 12. **AAPA** teaches that those

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structures fore and aft the claimed inline stripper are conventional or well known to those skilled in the art.

AAPA teachings:

Those of ordinary skill are believed to be well-versed in the use of the above and other similar subterranean groundwater/ vapor removal technologies in connection with which the invention may be used.

nants. Determination of sizing, depth, and all other relevant parameters in connection with construction and proper operation of the well 12 for withdrawing contaminated groundwater is readily accomplished by any person of ordinary skill in the art. For illustration purposes only for

[0062] Once the extracted fluid has been treated in the stripper 30, the liquid and vapor phase material is conducted, collected and separated as at conduit 50 into a vapor/liquid separator 52. Alternatively, the material processed through the inline stripper 30 may be conducted directly from the expansion chamber portion 36 into the separator 52. The separator 52 may be a conventional "knockout" vessel or drum in which the liquid and vapor phases are caused to separate primarily by means of gravity forces. The knockout vessel may also include an internal mist eliminator to aid in removal of fine liquid droplets from the vapor phase flow. The separator 52 may also be provided as a vessel packed with particulates such as a sand filter vessel where separation is enhanced by flow separation for improved mass transfer. A suitable size for the vapor /liquid separator vessel (in the case of a knockout vessel) is from about 50 to about 200 gals for an extract flow rate of from about 1 to about 20 gpm of liquids and from about 100 to about 1000 cfm of vapors, although it will be appreciated that the separator 52 may be sized by those of ordinary skill in accordance with the flow rates involved in the particular application of the treatment system.

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It is submitted the subject matter of claims **1,3-12,14** and **16-33** would have been readily apparent to those of ordinary skill in the art, in view of the combined teachings of **Cheng** and **AAPA**. Those skilled in the art would have readily appreciated that the resultant two-phase stream produced by the device of Cheng could be separated using conventional techniques, such as a “knockout” vessel as taught by AAPA, or by other means conventionally known to those skilled in the art.

Claims **1,3-12,14** and **16-33** are **alternatively** rejected under 35 U.S.C. 103(a) as being unpatentable over the combined teachings of **Rentschler (US 5,352,276)** and **Cheng (US 4,861,352)** and optionally, **AAPA (Applicant’s Admitted Prior Art)**

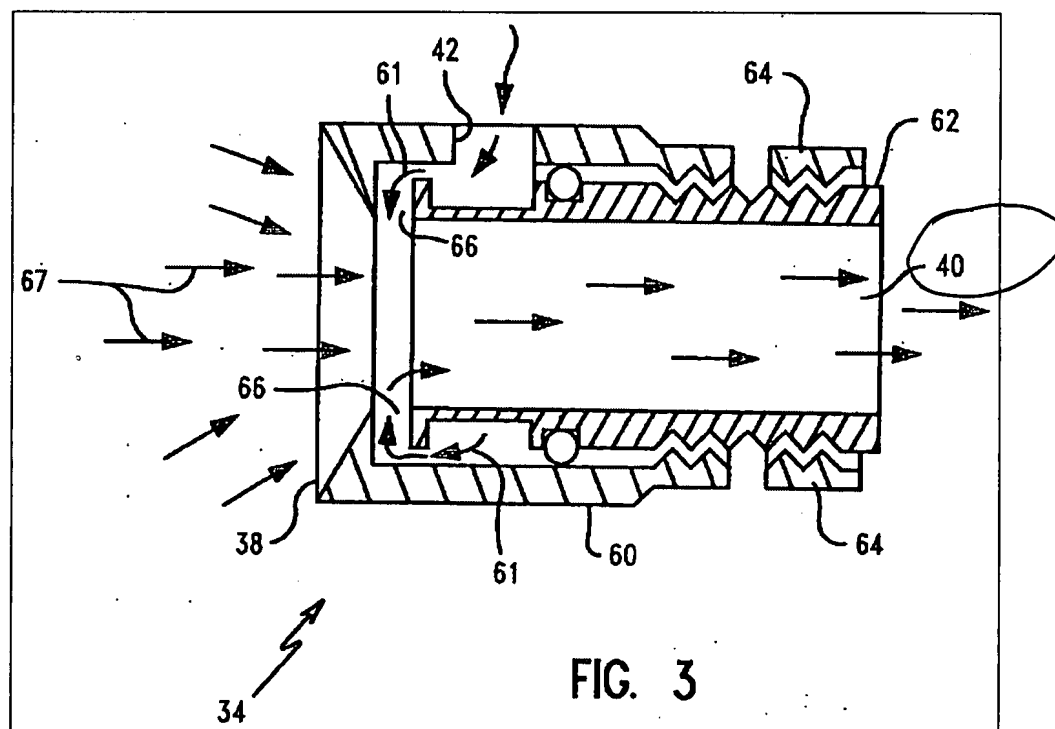
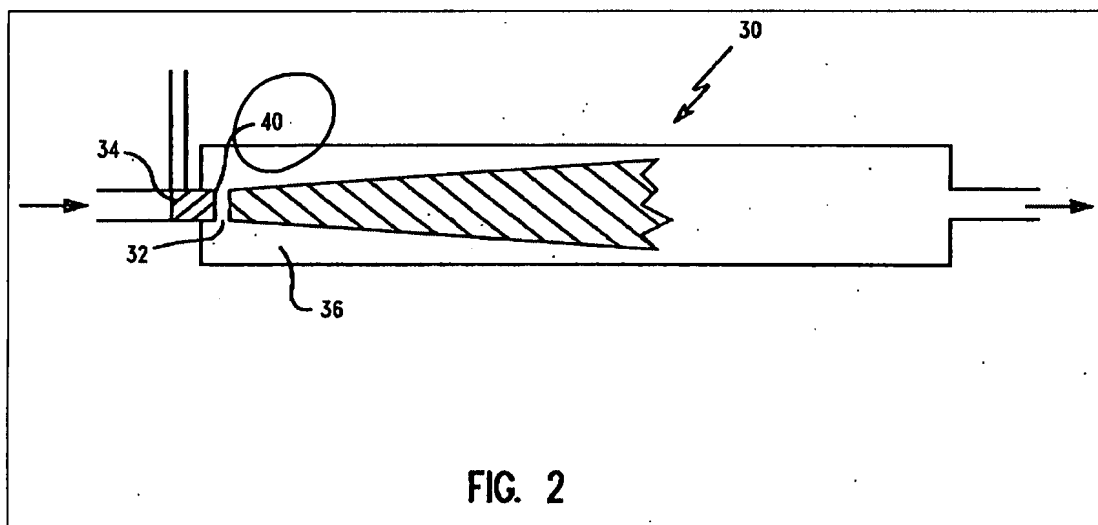
Rentschler does not disclose a “venturi-type” stripper as disclosed by Applicant. **Cheng** discloses a “venturi-type” stripper. AAPA teaches that the components fore and aft the claimed stripper are known in the art.

It would have been readily apparent to those skilled in the art to substitute the venturi-type stripper disclosed by Cheng, into the system of Rentschler, in order to remove contaminants from the liquid being treated, with both strippers being known functional equivalents, serving to strip. Any deficiencies of this combination would have been obvious in view of AAPA or that which is conventionally known to those skilled in the art.

Drawings

Figure 3 should be designated by a legend such as **--Prior Art--** because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The changes to Fig. 1 are approved. The changes to Fig. 2 are not approved. Deletion of the cross-hatching makes the drawing more difficult to understand. Again, an arrow indicating the compressed air flow in Fig. 2 is missing.



The drawings are objected to because in Fig. 2, it is unclear what the cross-hatched shape in the chamber 36 is intended to represent (it should be labeled), and the flows into the air amplifier 34 need to be labeled with reference numerals. Also, it is unclear what Applicant intends by reference numeral 32 in Fig. 2. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency.

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Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Response to Arguments

In the **Response of April 14, 2007**, Applicant asserted:

Finally, the Examiner questioned whether Fig. 4 was considered to be a depiction of the prior art. In response, Applicants respond that the extraction well depicted in Fig. 4 may be used in accordance with certain embodiments of the presently claimed invention. While certain aspects of the extraction well of Fig. 4 may have been previously disclosed, Fig. 4 is not considered to be a depiction of the prior art.

Applicants are requested to clarify this statement. It is unclear what aspects of Fig. 4 ***"may have been previously disclosed."*** In the spirit of compliance with 37 CFR 1.56, 1.97 and 1.98, Applicants may wish to make the particular prior art of record via a completed PTO-1449.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.



Robert James Popovics
Primary Examiner
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